

Mining Excavator

R 9100

Operating Weight with Backhoe Attachment:	108,500 kg / 239,201 lb
Operating Weight with Shovel Attachment:	112,500 kg / 248,020 lb
Engine Output:	565 kW / 757 HP
Bucket Capacity:	2.90 - 7.70 m ³ / 3.8 - 10.1 yd ³
Shovel Capacity:	5.60 - 8.70 m ³ / 7.3 - 11.4 yd ³



LIEBHERR



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Liebherr Vertical Integration

- Major components developed and manufactured in-house
- Designed specifically for severe mining applications
- Service Exchange Program
- Service tools available for component maintenance and exchange



Performance by Design

Liebherr's R 9100 introduces the next generation of machine to the 100 t mining excavator class. The R 9100 sets new standards in productivity, reliability and cost effective machine operation.

Productivity and Efficiency

Improved attachment kinematics combined with high-pressure hydraulics, deliver high crowd and breakout forces. Even in the toughest conditions, Liebherr's R 9100 delivers excellent bucket penetration and high bucket fill factors.

Reliability

The R 9100 incorporates Liebherr's extensively tested systems and components. With its improved single-line lubrication system and enhanced fuel and oil filtration, the R 9100's delivers exceptional reliability. Liebherr's innovative machine design and component manufacture ensure the R 9100 performs at an optimum level for its entire life.

Operating and Servicing

Operators will experience first class comfort in the new R 9100 cabin, making it the ideal work environment. Using panoramic windows and optimising the cabin position, Liebherr ensures that an uninterrupted view of the work area is delivered. Blind spots are eliminated through the use of two externally mounted cameras and displayed via a new 10.5 inch LCD screen. The insulated and air conditioned cabin provides a quiet environment for optimum production. All service points can be accessed ergonomically from one side of the machine while hinged louvers make cleaning and servicing easy.

Safety and Environment

Large catwalks provide easy, safe and ergonomic access to the machine's components. The R 9100 uses Liebherr's new Mining diesel engine which provides fuel efficient operation and is compliant with USA/EPA Tier 2 emission standards. Optimum temperature control of the machine is achieved by using independent hydrostatic fans and by separating the hydraulic oil and engine coolers. This cooling concept is very efficient meaning it uses very little energy and can perform in the harshest of mining conditions.

Machine Monitoring and Control System

- Information interface for operator and service crew
- Integrated rear and side view camera
- Vital machine information displayed (engine speed, coolant temperature, fuel level, ...)
- Diagnostic menu with descriptive text information
- Adjustable system settings
- Multiple languages



New Cab Design

- Excellent visibility over the whole working area
- A/C and air filtration
- Tinted safety glass all-around
- FOPS structure (option)
- Armored front window
- Pressurized cab to prevent dust penetration (option)
- Suspended cab ensuring low vibration and soundproof
- Optional « Operator Comfort Kit » with additional indoor sun blinds, bottle cooler, reading light, refreshed seat with electronic operator's weight adjustment.

Technical Data



Engine

1 Liebherr diesel engine	
Rating per ISO 9249	565 kW/757 HP at 1,800 rpm
Model	Liebherr D9512 (USA/EPA Tier 2 or fuel optimized setting)
Type	V12 cylinder engine
Bore/Stroke	128/157 mm/5.04/6.18 in
Displacement	24.24 l/1,479 in ³
Engine operation	4-stroke diesel common-rail direct injection turbo-charged
Cooling	water-cooled
Air cleaner	dry-type air cleaner with pre-cleaner, primary and safety elements, automatic dust discharge
Fuel tank	1,478 l/390 gal
Engine idling	electronically controlled
Electrical system	
Voltage	24 V
Batteries	4 x 170 Ah/12 V
Starter	24 V/2 x 8.4 kW
Alternator	24 V/140 A
RPM adjustment	brushless adjustment of engine output via rpm selector



Hydraulic System

Hydraulic pump	
for attachment and travel drive	3 Liebherr variable flow axial piston pumps
Max. flow	3 x 435 l/min./3 x 115 gpm
Max. pressure	350 bar/5,076 psi
Pump management	electronically controlled pressure and flow management with oil flow optimisation
Hydraulic pump	
for swing drive	1 Liebherr reversible swash plate pump, closed-loop circuit
Max. flow	420 l/min./111 gpm
Max. pressure	380 bar/5,511 psi
Hydraulic tank	1,000 l/264 gal
Hydraulic system	1,250 l/330 gal
Hydraulic oil filter	1 high pressure safety filter after each high pressure pump + extra-fine filtration of entire return flow with integrated by-pass filtration + dedicated leak-oil filtration
Hydraulic cooler	1 separated cooler, temperature controlled fan driven via 1 hydraulic piston motor
MODE selection	adjustment of machine performance and the hydraulics via a mode selector to match application
ECO	for economical operation (can be combined with fuel optimized setting)
POWER	for maximum digging power and heavy duty jobs



Hydraulic Controls

Power distribution	via monoblock control valves with integrated primary relief valves and flanged on secondary valves
Flow summation	to attachment and travel drive
Closed-loop circuit	for uppercarriage swing drive
Servo circuit	
Attachment and swing	proportional via hydraulic joystick levers
Travel	proportional via hydraulic pedals or removable hand levers
Shovel flap functions	proportional via hydraulic pedals



Electric System

Electric isolation	easy accessible battery isolators
Working lights	high brightness halogen lights: - 2 on working attachment - 1 on RHS of uppercarriage - 1 on LHS of uppercarriage Xenon lights in option
Emergency stop switches	in the cab/in option in engine compartment
Electrical wiring	heavy duty execution in IP 65 standard for operating conditions of - 50 °C to 100 °C/ - 58 °F to 212 °F



Swing Drive

Drive by	2 Liebherr axial piston motors
Transmission	2 Liebherr planetary reduction gears
Swing ring	Liebherr, sealed single race ball bearing swing ring, internal teeth
Swing speed	0 - 6 rpm stepless
Parking brake	wet multi-disc brakes, spring applied, hydraulically released



Uppercarriage

Design	torque resistant modular design upper frame
Attachment mounting	parallel length girders
Catwalks	large catwalk on the left-hand side

Technical Data



Operator's Cab

Cab	sound insulated, tinted windows. Front window armored glass, door with sliding window
Operator's seat	air suspended, body-contoured with shock absorber, adjustable to operator's weight
Joysticks	joystick levers integrated into armrest of seat, armrest adjustable to seat position
Condition monitoring	machine condition monitoring system with error reporting and operational information
Display	color LCD-display with low and high brightness settings
Rear vision system	camera installation on counterweight and right-hand side of the uppercarriage displayed over the LCD-display
Heating system	standard automatic air conditioning, combined cooler/heater, additional dust filter in fresh air/recirculated
Noise level (ISO 6396)	Diesel: L_{pA} (inside cab) = 73.4 dB(A) with oil/water fans at 70 % and AC fan at 65 %



Undercarriage

Version HD	heavy duty
Drive	Liebherr swash plate motors
Transmission	Liebherr planetary reduction gears
Travel speed	0 – 3.5 km/h / 0 – 2.17 mph
Track components	track pitch 280 mm/11.02 in, maintenance-free
Track rollers/Carrier rollers	8/2
Track pads	double grouser
Parking brake	wet multi-discs (spring applied, pressure released)
Brake valves	integrated in main valve block



Central Lubrication System

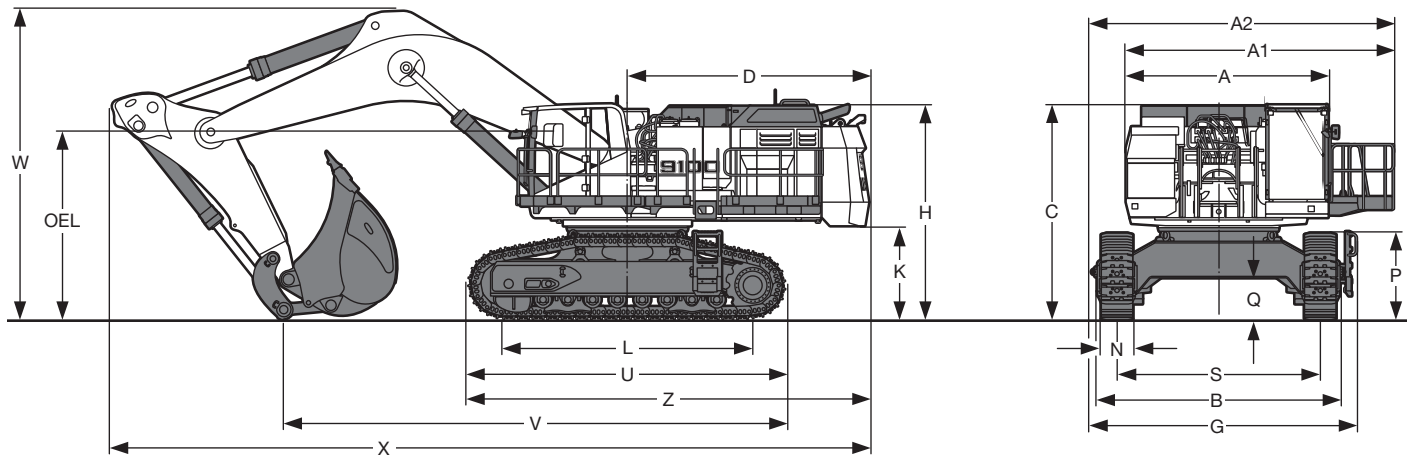
Type	centralised manual lubrication system for the entire attachment/swing ring bearing (automatic system in option) automatic Lincoln lubrication system for the swing ring teeth
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Attachment

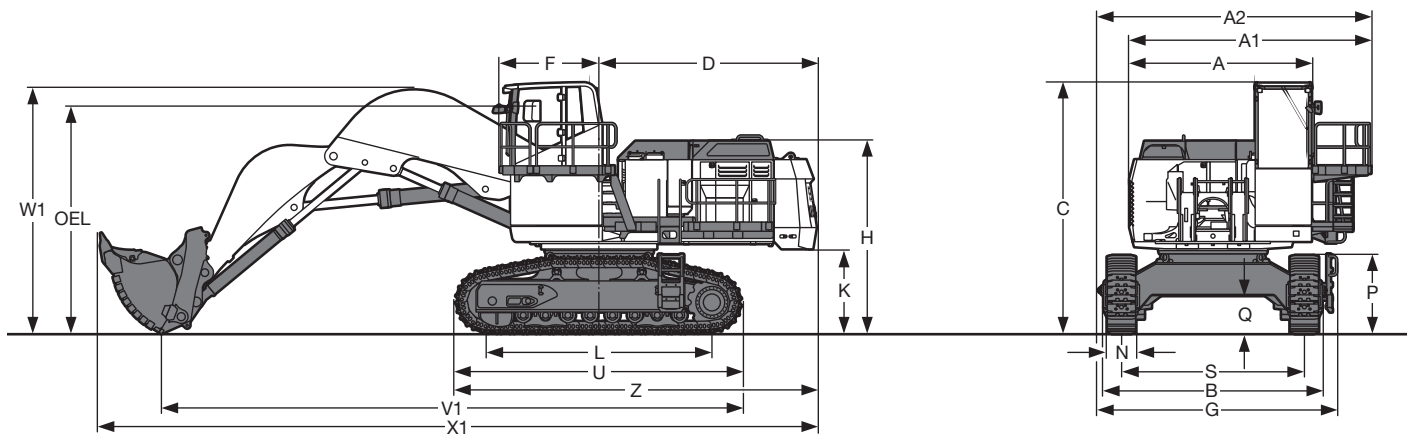
Type	box-type, combination of resistant steel plates and cast steel components
Hydraulic cylinders	Liebherr design
Pivots	sealed, low maintenance
Pivots bucket-to-stick bucket-to-link	O-ring sealed and completely enclosed
Hydraulic connections	pipes and hoses equipped with SAE flange connections

Dimensions



	mm/ft in
A	3,920/12'10"
A1	4,337/14' 2"
A2	5,752/18'10"
C	4,143/13' 7"
D	4,630/15' 2"
H	4,114/13' 5"
K	1,803/ 5'10"
L	4,810/15' 9"
P	1,663/ 5' 5"
Q	812/ 2' 7"
S	3,900/12' 9"
U	6,107/20'
N	500/1'7" 600/1'11" 750/ 2' 5"
B	4,780/15' 8"
G	5,031/16' 6"
Z	7,683/25' 2"
OEL	Operator's Eye Level 2,873/ 9' 5"

	Stick Length m/ft in	Gooseneck Boom 7.60 m/24'11" mm/ft in	Gooseneck Boom 9.20 m/30'2" mm/ft inn
V	3.20/10'5" 4.50/14'9" 5.60/18'4"	9,660/31'8" -/- -/-	11,445/37'6" 9,930/32'6" 9,890/32'5"
W	3.20/10'5" 4.50/14'9" 5.60/18'4"	6,035/19'9" -/- -/-	6,210/20'4" 6,800/22'3" 7,550/24'9"
X	3.20/10'5" 4.50/14'9" 5.60/18'4"	14,560/47'9" -/- -/-	16,080/52'8" 15,385/50'5" 14,825/48'7"

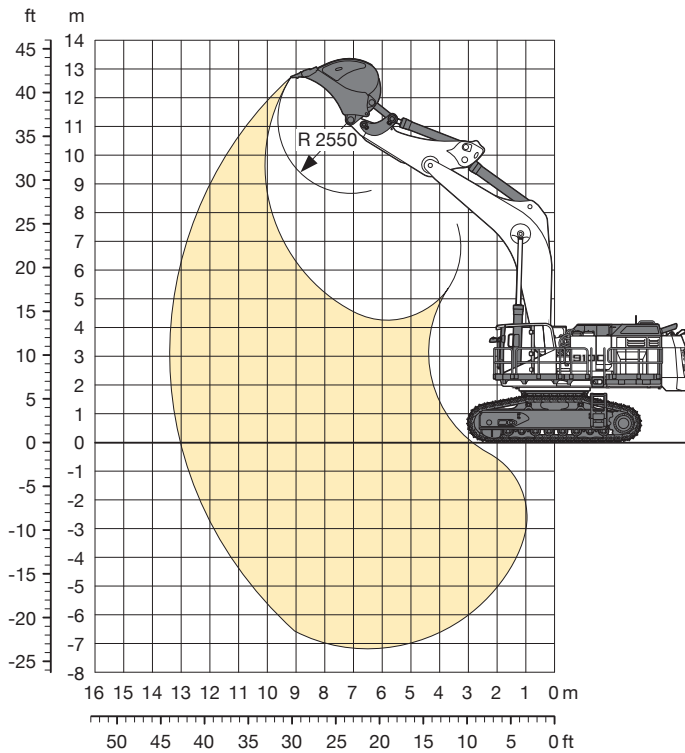


	mm/ft in
A	3,920/12'10"
A1	4,337/14' 2"
A2	5,752/18'10"
C	5,340/17' 6"
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H	4,114/13' 5"
K	1,803/ 5'10"
L	4,810/15' 9"
P	1,663/ 5' 5"
Q	812/ 2' 7"

	mm/ft in
S	3,900/12' 9"
U	6,107/20'
Z	7,683/25' 2"
N	500/1'7" 600/1'11" 750/ 2' 5"
B	4,780/15' 8"
G	5,031/16' 6"
V1	12,350/40' 6"
W1	5,300/17' 4"
X1	13,700/44'11"
OEL	Operator's Eye Level 4,073/13' 4"

Backhoe Attachment

with Gooseneck Boom 7.60 m/24'11"



Digging Envelope

Stick length	m	3.20
	ft in	10'5"
Max. digging depth	m	7.15
	ft in	23'5"
Max. reach at ground level	m	13.00
	ft in	42'7"
Max. dump height	m	8.65
	ft in	28'4"
Max. teeth height	m	12.70
	ft in	41'7"
Max. digging force (SAE)	kN	404
	lbf	90,823
Max. breakout force (SAE)	kN	512
	lbf	115,102

Operating Weight and Ground Pressure

The operating weight includes the basic machine with gooseneck boom 7.60 m/24'11", stick 3.20 m/10'5" and bucket 6.80 m³/8.89 yd³.

Undercarriage		HD	
Pad width	mm/ft in	600/1'11"	750/2'5"
Weight	kg/lb	108,500/239,201	109,520/241,450
Ground pressure	kg/cm²/psi	1.88/26.74	1.51/21.48

Buckets

For materials classe according to VOB, Section C, DIN 18300		< 5	< 5	< 5	5 – 6	5 – 6	5 – 6	7 – 8	7 – 8	7 – 8
Typical operation according to VOB, Section C, DIN 18300		GP	GP	GP	HD	HD	HD	XHD	XHD	XHD
Capacity ISO 7451	m³	7.70	7.00	6.50	7.50	6.80	6.20	7.00	6.50	6.00
	yd³	10.07	9.16	8.50	9.81	8.89	8.11	9.16	8.50	7.85
Suitable for material up to a specific weight of	t/m³	1.6	1.8	1.95	1.6	1.8	2.0	1.65	1.8	2.0
	lb/yd³	2,698	3,035	3,288	2,698	3,035	3,373	2,782	3,035	3,373
Weight	kg	7,100	6,700	6,600	7,530	7,100	6,800	7,940	7,700	7,400
	lb	15,653	14,771	14,550	16,601	15,653	14,991	17,505	16,976	16,314

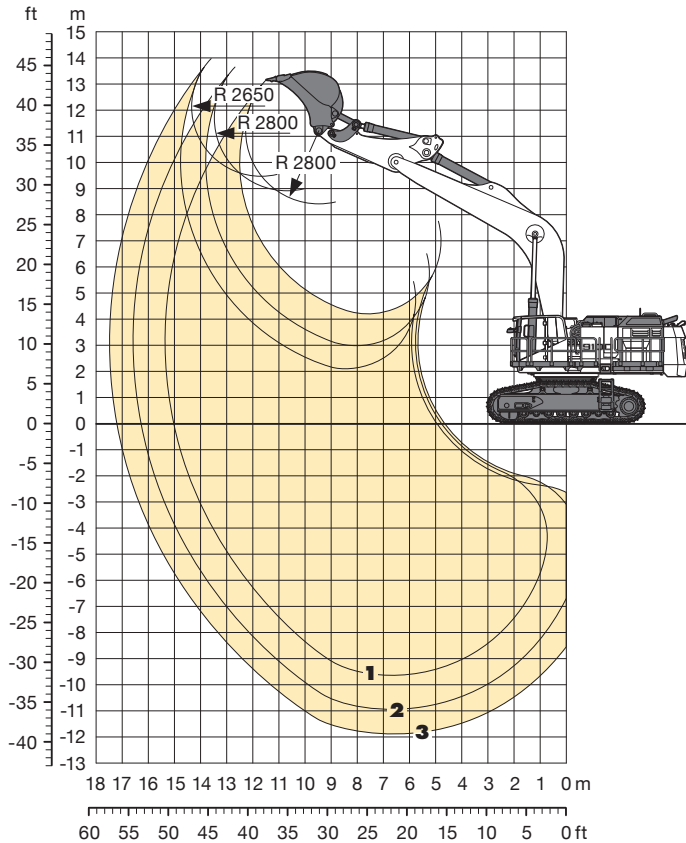
GP: General purpose bucket with Liebherr Z90 teeth

HD: Heavy-duty bucket with Liebherr Z100 teeth

XHD: Heavy-duty rock bucket with Liebherr Z100 teeth

Backhoe Attachment

with Gooseneck Boom 9.20 m/30'2"



Digging Envelope

		1	2	3
Stick length	m	3.20	4.50	5.60
	ft in	10'5"	14'9"	18'4"
Max. digging depth	m	9.64	10.94	11.90
	ft in	31'7"	35'10"	39'
Max. reach at ground level	m	15.02	16.20	17.07
	ft in	49'3"	53'1"	55'11"
Max. dump height	m	8.40	8.70	9.08
	ft in	27'6"	28'6"	29'9"
Max. teeth height	m	13.16	13.45	13.57
	ft in	43'1"	44'1"	44'6"
Max. digging force (SAE)	kN	380	330	300
	lbf	85,427	74,187	67,443
Max. breakout force (SAE)	kN	450	450	478
	lbf	101,164	101,164	107,459

Operating Weight and Ground Pressure

The operating weight includes the basic machine with gooseneck boom 9.20 m/30'2", stick 4.50 m/14'9" and bucket 4.20 m³/5.49 yd³.

Undercarriage		HD	
Pad width	mm/ft in	600/1'11"	750/2'5"
Weight	kg/lb	111,060/244,845	112,080/247,094
Ground pressure	kg/cm²/psi	1.92/27.31	1.55/22.05

Buckets

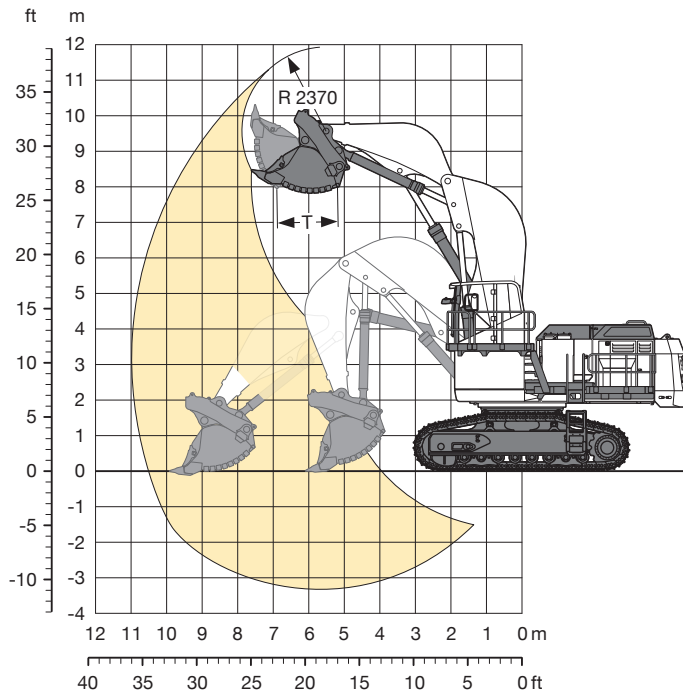
For materials classe according to VOB, Section C, DIN 18300		< 5	5 – 6	5 – 6	5 – 6	5 – 6	5 – 6
Typical operation according to VOB, Section C, DIN 18300		GP	HD	HD	HD	HD	HD
Capacity ISO 7451	m³	6.20	5.50	5.20	4.20	3.50	2.90
	yd³	8.11	7.19	6.80	5.49	4.58	3.79
Suitable for material up to a specific weight of							
with stick 3.20 m	t/m³	1.2	1.5	1.8	2.0	2.2	–
with stick 10'5"	lb/yd³	2,024	2,530	3,035	3,373	3,710	–
with stick 4.50 m	t/m³	–	1.2	1.5	1.8	2.0	2.2
with stick 14'9"	lb/yd³	–	2,024	2,530	3,035	3,373	3,710
with stick 5.60 m	t/m³	–	–	1.2	1.5	1.8	2.0
with stick 18'4"	lb/yd³	–	–	2,024	2,530	3,035	3,373
Weight	kg	6,800	7,100	6,400	5,300	4,600	4,000
	lb	14,991	15,653	14,110	11,684	10,141	8,818

GP: General purpose bucket with Liebherr Z90 teeth

HD: Heavy-duty bucket with Liebherr Z100 teeth

Shovel Attachment

with Shovel Boom 5.30 m/17'4"



Digging Envelope

Stick length	3.70 m/12'1"
Max. reach at ground level	10.50 m/34'5"
Max. dump height	8.10 m/26'6"
Max. crowd length	3.70 m/12'1"
Bucket opening width T	1,700 mm/ 5'6"
Max. crowd force at ground level (SAE)	545 kN/122,521 lbf
Max. crowd force (SAE)	671 kN/150,847 lbf
Max. breakout force (SAE)	544 kN/122,296 lbf

Operating Weight and Ground Pressure

The operating weight includes the basic machine with shovel attachment and a 7.00 m³/9.16 yd³ bucket.

Undercarriage		HD	
Pad width	mm/ft in	600/1'11"	750/2'5"
Weight	kg/lb	112,500/248,020	113,500/250,224
Ground pressure	kg/cm²/psi	1.95/27.74	1.57/22.33

Bottom Dump Buckets

For materials classe according to VOB, Section C, DIN 18300		< 5	< 5	5 – 6	5 – 6	5 – 6	5 – 6	7 – 8	7 – 8	7 – 8
Typical operation according to VOB, Section C, DIN 18300		GP	GP	HD	HD	HD	HD	XHD	XHD	XHD
Capacity ISO 7546	m³	8.70	7.50	7.50	7.00	6.40	5.60	7.00	6.40	5.60
	yd³	11.38	9.81	9.81	9.16	8.37	7.32	9.16	8.37	7.32
Suitable for material up to a specific weight of	t/m³	1.3	1.7	1.6	1.8	2.0	2.4	1.5	1.8	2.2
	lb/yd³	2,192	2,867	2,698	3,035	3,373	4,047	2,530	3,035	3,710
Weight	kg	12,600	11,400	12,000	11,400	11,000	10,400	13,200	12,400	11,600
	lb	27,778	25,133	26,455	25,133	24,251	22,928	29,101	27,337	25,574
Wear kit level		I	I	II	II	II	II	III	III	III

GP: General purpose bucket with Liebherr Z90 teeth

HD: Heavy-duty bucket with Liebherr Z100 teeth

XHD: Heavy-duty rock bucket with Liebherr Z100 teeth

Level I: For non-abrasive materials, such as limestone, without flint inclusion, shot material or easily breakable rock, i.e., deteriorated rock, soft limestone, shale, etc.

Level II: For preblasted heavy rock, or deteriorated, cracked material (classification 5 to 6, according to DIN 18300)

Level III: For highly-abrasive materials such as rock with a high silica content, sandstone etc.

The Liebherr Group of Companies



Wide Product Range

The Liebherr Group is one of the largest construction equipment manufacturers in the world. Liebherr's high-value products and services enjoy a high reputation in many other fields. The wide range includes domestic appliances, aerospace and transportation systems, machine tools and maritime cranes.

Exceptional Customer Benefit

Every product line provides a complete range of models in many different versions. With both their technical excellence and acknowledged quality, Liebherr products offer a maximum of customer benefits in practical application.

State-of-the-art Technology

To provide consistent, top quality products, Liebherr attaches great importance to each product area, its components and core technologies. Important modules and components are developed and manufactured in-house, for instance the entire drive and control technology for construction equipment.

Worldwide and Independent

Hans Liebherr founded the Liebherr family company in 1949. Since that time, the enterprise has steadily grown to a group of more than 120 companies with over 35,000 employees located on all continents. The corporate headquarters of the Group is Liebherr-International AG in Bulle, Switzerland. The Liebherr family is the sole owner of the company.

www.liebherr.com